User Manual

TPHD403P

PTN HDBaseT Pro Extender with PoC

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Version: TPHD403P_2014V2.1

SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.

NOTICE: Please read this user manual carefully before using this product.
Pictures shown on this manual are for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage. The functions described in this version are updated till April 2014. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

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All product function is valid till 2014-04-16.

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1. Introduction

1.1 Introduction to TPHD403P

TPHD403P is an HDMI/IR/RS232 twisted pair extender including one transmitter (TPHD403PT) and one receiver (TPHD403PR). It is a professional 1x1 extender, with a single CAT5e cable, the input HDMI signal can be long-distance transmitted, and the control signal (IR & RS232) is able to work in a bi-directional way, and PoC are supported by TPHD403P. With its Ethernet ports, TPHD403P also supports internet access to work in a LAN.

1.2 Features

- HDBaseT technology
- High Bandwidth: 10.2Gps
- Support CEC
- Support 3D
- Support PoC, eliminating the complexity of installing local power supplies.
- HDMI/IR/RS232 signal transmitted over single CAT5e/CAT6 twist pair.
- Max transmission distance is up to 90 meters for 1080P signals.
- Max transmission distance is up to 60 meters for 4K×2K signals.
- Support Ethernet expanding.
- HDTV Compatible, use HDMI 1.4a and HDCP compliant.
- Support 1080P, 1080i, 720P, 576P, 576i, 480P, and 480i.
- High quality output video signal with 24bit/36bit deep color.
- Bi-directional RS232 control.
- Bi-directional IR control.
- LED indicators show work status.
- Wall/table-mountable aluminium enclosure with PT case design.

Note: Please use a CAT5e cable with low impedance (Shielded twisted pair will be better and should be well grounded) for good transmission effect.

1.3 Package Contents

- 1 x TPHD403PT
- 1 x TPHD403PR
- 4 x Mounting ears (Separated from TPHD403PT and TPHD403PR)
- 1 x Power adapter (DC 24V)
- 8 x Plastic cushions
- 2 x IR Emitter (MYS-003B Φ3.5mm plug, not included, selectable)
- 2 x IR receiver (TSMP1138 Φ3.5mm plug, not included, selectable)
- 2 x RS232 cables
- 8 x Screws (3*6mm)
- 1 x User manual

Notes：Please confirm if the product and the accessories are all included, if not, please

contact with the dealers.

2. Introduction of Product Appearance

2.1 Product Appearance of TPHD403PT

Figure 1 Interfaces of TPHD403PT

No.	Name	Description
①	On Link In Power	✓ On: Used to show the working status, blinks when in normal working state, turns off when stop working. ✓ Link: Twisted Pair Link status indicator. It will keep on when connection is successful. ✓ In: When connected with a device which supports HDCP and works normally, it will keep on. If the device does not support HDCP, it will blink. ✓ Power: Illuminate red when powered on.
②	ETHERNET	Ethenet ports, when need to work in a LAN, one of these 4 ports (both the Ethernet ports of TPHD403PT and TPHD403PR) should be used for internet access, and the others can be connected with computers. If they are well connected, the yellow LED indicators on the corresponding ports will keep blink and the green ones will keep on when working.
③	HDBT OUT	Connect with the HDBT IN port of TPHD403PR via a single CAT5e cable (90m length in max).
④	HDMI IN	HDMI input port, connect with an HDMI source device.
⑤	IR IN&OUT	✓ IN: Connect with IR receiver, the IR signal received from this port can only send out in TPHD403PR. ✓ OUT: Connect with IR Emitter, and the sending IR signal is received from TPHD403PR.
⑥	RS232	Serial port, 3p captive screw connector, connect with the control terminal to control the controlled terminal, supports bi-directional RS232 control between the transmitter (TPHD403PT) and the receiver (TPHD403PR).
⑦	DC 24V	Connect with a DC 24V power adapter. (Not necessary if TPHD403PR connects with power adapter)

Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

2.2 Product Appearance of TPHD403PR

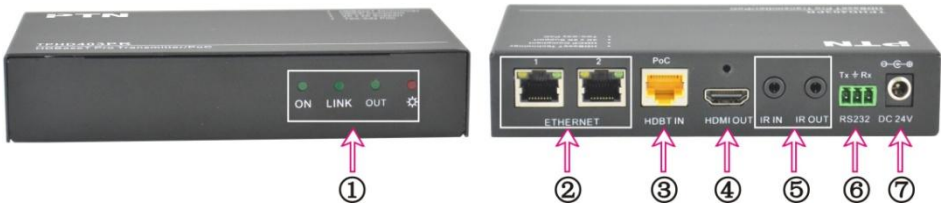


Figure 2 Interfaces of TPHD403PR

No.	Name	Description
①	On Link Out Power	✓ On: Used to show the working status, blinks when in normal working state, turns off when stop working. ✓ Link: Twisted Pair Link status indicator. It will keep on when connection is successful. ✓ Out: When connected with device which supports HDCP and works normally, this LED will keep on. If the device does not support HDCP, the LED will blink. ✓ Power: Turns red and keep on when power on.
②	ETHERNET	Ethenet ports, when need to work in a local area network, one of these 4 ports (both the Ethernet ports of TPHD403PT and TPHD403PR) should be used for internet access, and the others can be connected with computers. If they are well connected, the yellow LED indicators on the corresponding ports will keep blink and the green ones will keep on when working.
③	HDBT IN	To connect with the HDBT OUT port of TPHD403PT by using a single CAT5e cable (90m length in max).
④	HDMI OUT	HDMI output port, connect with an HDMI displaying device.
⑤	IR IN&OUT	✓ IN: Connect with IR receiver, the IR signal received from this port can only send out in TPHD403PT. ✓ OUT: Connect with IR Emitter, and the sending IR signal is received from TPHD403PT.
⑥	RS232	Serial port, 3p captive screw connector, connects with the control terminal to control the controlled terminal, supports bi-directional RS232 control between the transmitter (TPHD403PT) and the receiver (TPHD403PR).
⑦	DC 24V	Connect with a DC 24V power adapter. (Not necessary if TPHD403PT connects with power adapter)

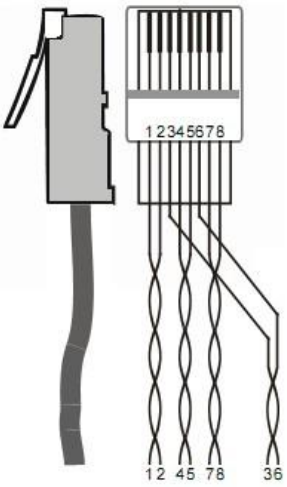
Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

2.3 Twisted Pair Cable Connection

The twisted pair used in TPHD403P MUST be a straight-through cable. The connectors can be T568A or T568B, but both sides must be the same.

TIA/EIA T568A	
Pin	Cable color
1	green white
2	green
3	orange white
4	blue
5	blue white
6	orange
7	brown white
8	brown
1st Ground	4--5
2nd Ground	3--6
3rd Group	1--2
4th Group	7--8

TIA/EIA T568B	
Pin	Cable color
1	orange white
2	orange
3	green white
4	blue
5	blue white
6	green
7	brown white
8	brown
1st Ground	4--5
2nd Ground	1--2
3rd Group	3--6
4th Group	7--8



3. System Connection

3.1 Usage Precautions

Please cut off the power of the HDMI source device and the output displaying device before accessing with TPHD403P, as it may damage to TPHD403P. Ensure that all connections (including the power cord) are done before turning on the power to work with TPHD403P.

3.2 System Diagram

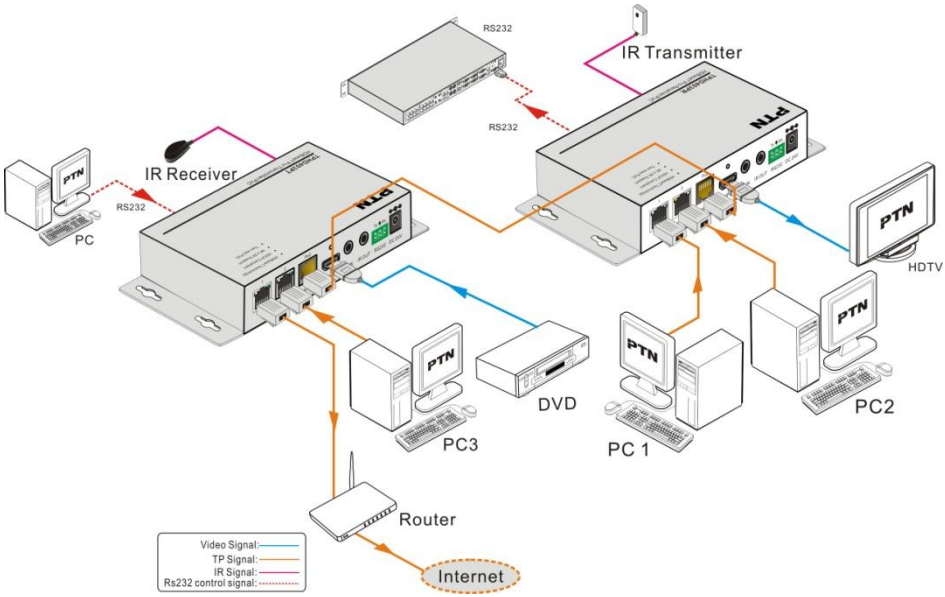


Figure 3 System Diagram

3.3 Connection Procedure

Step1. Connect HDMI source (such as DVD player) to HDMI IN port of the transmitter TPHD403PT with HDMI cable.

Step2. Connect HDBT OUT port of TPHD403PT and HDBT IN port of TPHD403PR, with single CAT5e cable.

Step3. Connect HDMI displayer (such as HDTV) to HDMI OUT port of TPHD403PR with HDMI cable.

Step4. Both TPHD403PT and TPHD403PR have IR IN and OUT. When one model use for IR signal receiver, the IR signal must be sent out by the other model.

For example: When “IR IN” of TPHD403PT connects with an IR receiver, the IR Emitter must be connected to “IR OUT” of TPHD403PR.

Step5. To set as a LAN, one of the four ETHERNET ports of TPHD403PT and TPHD403PR should be used for Internet access, and the others can be connected with computers.

Step6. Connect the RS232 port of the computer and the RS232 port of TPHD403PT or TPHD403PR (any one is able to work as the RS232 signal can be transmitted bi-directionally) by using a RS232 cable.

Step7. Connect with DC24V power adaptor(s) (Any end of TPHD403PT and TPHD403PR is connected with power adapter is enough with its PoC function).

3.4 System Applications

As its good performance in control and transmission, TPHD403P can be widely used in computer realm, monitoring, large screen displaying, conference system, education and bank securities institutions etc.

4. Specification

Model / Spec	TPHD403PT	TPHD403PR
Input		
Input Signal	1 HDMI,1 IR in, 1 RS232	1 IR in, 1 HDBaseT, 1 RS232
Input Connector	1 HDMI female 1 3.5mm mini jack for IR in 1 3P captive connector	1 3.5mm mini jack for IR in 1 RJ-45 1 3P captive connector
Video Signal	HDMI1.4a	HDMI1.4a
Audio	Digital audio, transmit through HDMI audio	Digital audio, transmit through HDMI audio
Output		
Output	1 HDBaseT, 1 IR out, 1 RS232	1 HDMI, 1 IR out, 1 RS232
Output Connector	1 RJ-45 1 3.5mm mini jack for IR out 1 3P captive connector	1 HDMI female 1 3.5mm mini jack for IR out 1 3P captive connector
Video signal	HDMI1.4a	HDMI1.4a
Transmission Mode	HDBaseT	
Ethernet Port		
Connector	2 RJ45	2 RJ45
Ethernet Transmission Speed	Adaptive 10M/100M (max), full duplex or half duplex.	
General		
Resolution	800x600@60Hz、1024x768@Hz、1280x720@60Hz、1280x1024@60Hz 、1366x768@60Hz、1600x1200@60Hz 1920x1080@60Hz、1920x1200@60Hz、3D、4K×2K	
Transmission Distance	Max distance 90m	
SNR	>70dB@ 100MHz-100M	
Bandwidth	10.2Gbps	

HDMI Standard	Support HDMI1.4a and HDCP
Impedance	75Ω
Temperature	-10 ~ +40℃
Humidity	10% ~ 90%
Power Consumption	10W
Power Supply	Input: 100VAC~240VAC, 50/60Hz; Output: 24VDC 1.25A
Dimension (W*H*D)	152x30x 84mm
Net Weight	0.8Kg

5. Panel Drawing

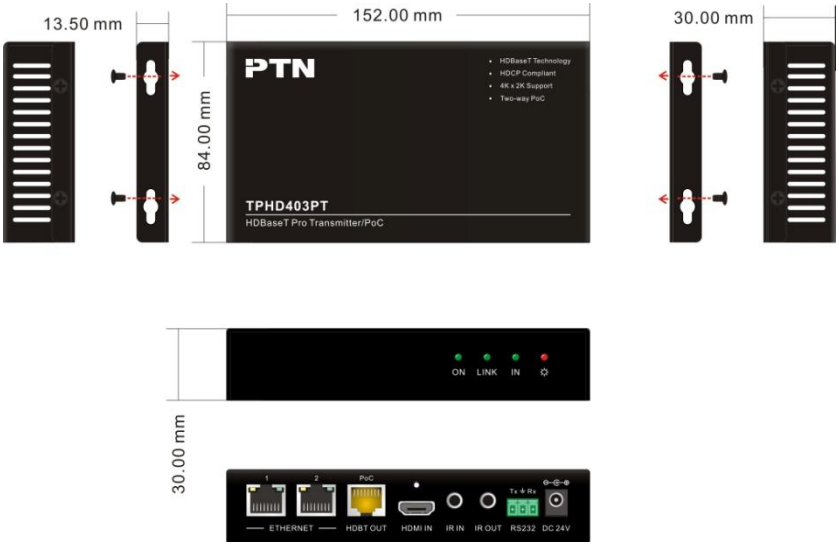


Figure 4 Panel Drawing of TPHD403PT

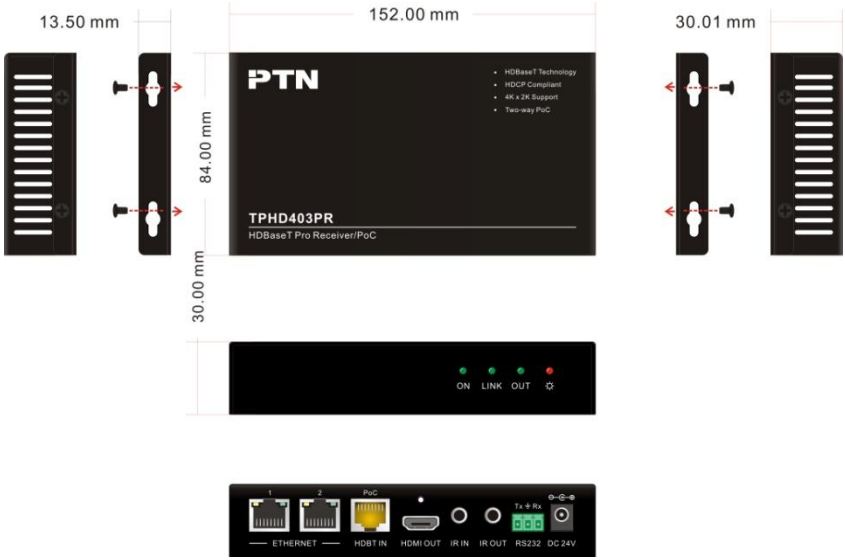


Figure 5 Panel Drawing of TPHD403PR

6. Troubleshooting & Maintenance

Problems	Causes	Solutions
Output images in display show with ghost	Incorrect setting on the display	Check the display's setting
	A cable of bad quality	Try another high quality connection cable
No output image when switching	No signal at the input / output end	Check with oscilloscope or multimeter if there is any signal at the input / output end.
	Fail or loose connection	Make sure the connection is good
	The extender is broken	Send it to authorized dealer for repairing.
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong RS232 communication parameters	Make sure the RS232 communication parameters are correct.
	The device has already been broken	Send it to authorized dealer for repairing.
Cannot recognize device connected to the ETHERNET port	The connected device has the same IP address with the extender	Change the IP address of the extender or the connected device.
Static becomes stronger when connecting the video connectors	Bad grounding	Check the grounding and make sure it is connected well.
Cannot control the device by RS232 / IR	The device has already been broken	Send it to authorized dealer for repairing.

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

7. After-sales Service

If there appear some problems when running the device, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.

1) **Product Limited Warranty:** PTN warrants that its products will be free from defects in materials and workmanship for **three years,** which starts from the first day you buy this product (The purchase invoice shall prevail).
   Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.
2) **What the warranty does not cover:**
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - Normal wear and tear
     - Use of supplies or parts not meeting our specifications
     - No certificate or invoice as the proof of warranty.
     - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - Damage caused by force majeure.
     - Servicing not authorized by PTN
     - Any other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product
3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor, or email PTN at: support@PTN-electronics.com.

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